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ABSTRACT

A paper describes how David Bohm's holographic world view can be used to design a whole language program. Characterized by interconnectedness and multidimensionality, Bohm's holographic paradigm joins Eastern and Western belief systems in an old fashion pursuit of wisdom, on the one hand, and a new fashion pursuit of solutions to nonlinear problems in chaotic systems, on the other. These two characteristics, in turn, inform the design of a whole language program that combines procedural knowledge (k-w-l, know-want-learn, learning strategy and D. N. Perkins' knowledge as design); declarative knowledge (great world literature); and cooperative learning. The program helps each non-elite middle school student to reach full height as a maker of knowledge others will want to read, hear, or see. (Author/SG)

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" To see a world in a grain of sand
and heaven in a flower,
hold infinity in the palm of your hand
and eternity in an hour."

William Blake

DESIGNING THE HOLOGRAPHIC WHOLE LANGUAGE PROGRAM

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Opinion Paper

Abstract

This paper describes how David Bohm's holographic world view can be used to design a whole language program. Characterized by interconnectedness and multidimensionality, Bohm's holographic paradigm joins Eastern and Western belief systems in an old fashion pursuit of wisdom, on the one hand, and a new fashion pursuit of solutions to nonlinear problems in chaotic systems, on the other. These two characteristic, in turn, inform the design of a whole language program that combines procedural knowledge (k-w-l learning strategy and D. N. Perkins' knowledge as design), declarative knowledge (great world literature), and cooperative learning. The program helps each non elite middle school student to reach full height as a maker of knowledge others will want to read, hear or see.

Descriptors: African American students, Bohm's holographic world view, change, cooperative learning, higher order thinking, k-w-l learning strategy, middle school students, Perkins' knowledge as design, Taoism, Transcendental Meditation, **whole language approach**

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It was good Friday, 13 April 1990. 50 or so Christians walked through an East Mt. Airy neighborhood in Philadelphia.

" Were you there when they crucified my Lord," sang the group as they followed the cross bearer from station to station. 14 times the group stopped to hear stories about Jesus' march to Calvary. They prayed, then strode on, singing the spiritual in unison.

1 Corinthian 12:12 gives the gist of the event.

For as the body is one and has many members and all the members of the body, though many, are one body, so also it is with Christ. For by one Spirit we were all baptized into one body--Jews or Greeks, slaves or free--and all were made to drink of one Spirit.

So also it is with the Holographic Paradigm. Just as each of the 50 Christians enacting the march to Calvary has within self the Christ and all together every member is the Christ, so it is with matter and energy. All enfolds within the implicate order while at the same time unfolding as an expression of that source.

Marilyn Ferguson puts it this way.

" In the heaven of Indra there is said to be a network of pearls so arranged that if you look at one you see all the others reflected in it. In the same way, each object in the world is not merely itself but involves every other object, and in fact is every other object."

This then is the Holographic paradigm in a nutshell: all life and non life connect at a sub atomic level which is the source of their expression. Each manifestation of the source is a hologram of the whole, and, therefore, stands in ecological relationship to every other member. From the perspective of the new, holographic world view, the acquisition of wisdom depends upon recognizing basic links between life and nonlife, matter and energy, spiritual and scientific views, Eastern and Western belief systems.

The new world view provides a framework for designing innovative approaches that develop language and thought in non elite students.

The purpose of this paper, then, is to use the holographic paradigm to design a whole language approach that might improve the academic achievement of non elite, middle school students, especially those living in chaotic environments. Two primary ideas from the paradigm inform the design.

First, over 2,500 years ago, Taoists understood that life flows from its source the way rivers flow from seas or branches grow from trees.

The Tao is the one.
From the One come yin and yang;
From these two creative energy;
From energy, ten thousand things,
The forms of all Creation.

All life embodies yin
and embraces yang,
Through their union
Achieving harmony.

When applied to a curriculum idea, all knowledge flows from the unified field of consciousness. Manifestations of the unified field define and are defined by each other: reading is the yin for its yang, writing; speaking is the yang for its yin, listening. Thinking joins feeling. Content needs skills. Facts find life with values.

All these pairs flow from consciousness and stand in dynamic, ecological relationship. They illustrate **interconnectedness**, one characteristic of the holographic paradigm as it applies to the development of a whole language program.

Says Ken Wilber, in the introduction to his compendium of ideas about the Holographic Paradigm, " the brain is a hologram perceiving and participating in a holographic universe. In the explicate or manifest realm of space and time, things and events are indeed separate and discrete. But beneath the surface, as it were, in the implicate or frequency realm, all things and events are spacelessly, timelessly, intricately, one and individual. And Bohm and Pribram reasoned, the quintessential religious experience, the experience of mystical oneness and supreme identity, might very well be a genuine and legitimate experience of this implicate and universal ground."

Therein lies **multidimensionality**, the second characteristic of the Holographic Paradigm.

Time and space are one at the sub atomic, the unbroken wholeness level connecting matter and energy--David Bohm's implicate order or Maharishi Mahesh Yogi's unified field of consciousness or the Tao.

People can tap the silence of the implicate order through prayer, meditation or some other psychotechnology. They can experience oneness with a force more powerful than self; the Tao for instance, or God since, as John Heider points out in his book, *The Tao of Leadership,* God and the Tao are one.

Physical representations in the explicate order, however, divide time into past, present, and future; space into up, down, and across. People experience these multiple manifestations of time and space daily. They hear music, watch television, dance, drive cars, play the lottery, talk and eat. All matter and energy, all words, pictures and numbers, all physical experiences are the explicate order-- " ten thousand things, the forms of all Creation."

Simply put, the multidimensionality of the Holographic world view when outlined, generically, is this:

- **implicate order (Tao, God, consciousness, unified field)**
- **explicate order (yin and yang; other infinite manifestations from the creative energy of yin and yang)**

In a whole language program, multidimensionality would be this:

- **consciousness (implicate order)**
- **learning strategy, higher order thinking, social cognition (explicate order/key factors)**
- **evolution to highest self--the unitive self (explicate order/change)**

A whole language program would give learners a chance to connect with a power larger than self; i.e. they would experience the unified field of consciousness through spirituality or psychotechnology. It would link the experience of consciousness to teaching learning strategies such as the " k-w-l," higher order thinking such as " knowledge as design," and cooperative learning. Finally, it would empower learners to construct knowledge and help each one evolve into a unitive self--someone who feels deep connections between self and others, a person who feels responsible for taking care of the planet.

In short, a whole language program must be holographic, both interconnected and multidimensional.

First, ideally, a holographic (whole language) teaching approach uses psychotechnology to give learners the experience of consciousness on a regular basis. Peter Russell, in his book, *Global Brain*, says psychotechnology helps develop each person's sense of connection to a power larger than self. While at the same time, psychotechnology improves resistance to stress and overall wellness. Particular psychotechnologies such as Transcendental Meditation (TM) have 25 years of research to support the hypothesis that people also improve cognitive performance (memory, creativity, intelligence, academic achievement) besides overall well being. They become more mentally, spiritually, and physically tuned.

" When practicing TM, you not only experience the unified field, you become the unified field, " said John Pronchik during one of his lectures at the 22nd Street Transcendental Meditation center in Philadelphia.

A whole language model might do well to instruct learners in TM. It would let them experience unbroken wholeness--the deep level creative intelligence connecting known, knower and process of knowing.

But at Sulzberger, a middle school half bordered by projects and stuck in the midst of Philadelphia's " bottom " at 48th and Fairmount, it was not possible in 1989-1990 to raise the $85 dollars per student for the TM technique. The silence of TM costs money and parental permission.

It was possible, though, to design a morning program that tapped spirituality, and thus gave all a sense of something larger than self.

After roll had been taken in a sixth grade advisory, students began the morning with the Pledge of Allegiance to the Flag and the Black National Anthem " Lift every voice and sing." Then a student read the black fact of the day--an historical event in lives of African Americans. A call and response saying about love followed. Then one student read a Taoist affirmation or an African American poem.

The program ended with singing " Sisi Watu Weusi, Watu Wazuri " (we are black, beautiful people) and chanting Harambee seven times, one for each principle of the Nguzo Saba.

While the morning program could not substitute for the deep development of oneness people experience with TM, it did give the students in Green House section 165 regular experience of a force larger than self. But no one could say the program made students more cognitively ready the way TM would. The students just seemed to like taking turns as leaders and participants, and the sense of interconnectedness through spirituality was often felt.

On the multidimensional side, a whole language program offers regular Directed Reading and Thinking activities (DRTAs) that include learning strategies such as k-w-l and systems of higher order thinking such as D. N. Perkins' knowledge as design.

K-w-l involves posing the following three (3) questions.

1.What do we **know**?
2.What do we **want** to know?
3.What have we **learned**?

The k stands for the word know in the first question. The w stands for the word want in the second question. The l stands for learning in the third question.

Each learner keeps a learning log to record entries made in response to the three k-w-l questions. A log identified with name, section, date, and type of reading also presents the three questions in a chart.

Before reading a passage, learners answer the first question (What do we know?). This helps them collect ideas they already have about the topic. This warms them up and connects what they know with the new subject.

The second question (What do we want to know?) helps them find out what they might want to learn. That gives a purpose for reading.

The third question (What did we learn?) helps them sum up what they read and connects the new information to the previously known.

So k-w-l works in three steps: know, want, learn.

A tool for both reading well and listening effectively, k-w-l can be used in all subjects, especially content areas such as math, science, literature and social studies.

Just before the 1990 Thanksgiving Holiday 150 students in Sulzberger Middle School's Red House Reading program had a Directed Reading and Thinking Activity on Edgar Allen Poe's " The Tell-Tale Heart." After discussing background material on Poe's life and hearing an oral reading of the story, students listed and discussed what they knew about horror stories. Then they generated several questions about what they wanted to know about Poe's story. They read for answers to their questions, and, last, they wrote and discussed what they learned.

Follow up DRTA lessons included using k-w-l for constructing a timeline of events in the plot. They also acted the story out.

Their DRTA ended with an essay test that used D. N. Perkins' knowledge as design, as the specific method of higher order thinking.

While k-w-l is a strategy for learning, Perkins' **knowledge as design** provides a conceptual framework for understanding facts in any field. It is an especially useful method for writing and reasoning. When applied to designing an essay test on Poe's story, for example, knowledge as design helped guide critical and creative thinking with questions such as the following.

1. Why did Edgar Allen Poe write " The Tell-Tale Heart?"
2. Examine the picture of the two main characters in Poe's horror story. The picture reminds you of the characters, setting and plot. Write a paragraph to tell someone about the story. Be sure to tell the time line of key events in the plot as well as where the action takes place and who the characters are that do the acting.
3. How does Edgar Allen Poe's tale of horror compare with a fable such as Aesop's " The Bundle of Sticks?" How is it similar? How is it different?
4. Would " The Tell-Tale Heart " make a good horror movie? Why or why not?

A Harvard University professor and world renown consultant for teaching higher order thinking skills, David Perkins claims that a **design** is " any structure adapted to purpose. " Thus, a design has four features: purpose, structure, model cases, arguments. Perkins' method can be used to think critically and creatively (dialectically) about dissimilar items such as a pencil, poem or song. It crosses disciplines as well. In fact, any design, including this paper, can be analyzed by asking these four design questions:

- **What is the purpose?**
- **What is the structure?**
- **What is the model case?**
- **What is the argument?**

Sixth grade students at Sulzberger, during the 1989-1990 school year, learned that the pencil serves as a writing instrument. It is often made of painted wood, a lead center, and rubber tip. Model cases range from pens to computers, i.e., other writing instruments. The pencil can be discussed in terms of how it works or how well it works or how its subatomic level gives it form (explanatory or evaluative or deep explanatory arguments).

Poems such Gwen Brooks' Life of Little Lincoln West or Pablo Neruda's " Earth," also, can be analyzed for purpose, structure, model cases and arguments. So can Melba Moore's popular rendition of " Lift Every Voice and Sing." So can Alice Walker's *Temple of My Familiar.* So can Illya Prigogine and Isabel Stengers' landmark philosophy of science book, *Order out of Chaos.* So can Einstein's theory of relativity or Piagetian theory. So can the works of Wole Sonyika. So can *The New Oxford Annotated Bible* or the *Tao Te Ching* or the theory of chaos or fractals. Each of these is a **structure adapted to a purpose**--a design--and thus will itself have a purpose, structure, model case and agrument.

The Sulzberger sixth graders used Perkins' interdisciplinary method to write compositions about John Naisbitt's megatrends, directions on how to use a protractor in math, five reports of jr. great books, a research project (" Great African American Doers and Thinkers"), extended definitions of love, sex, life, death or roots--all using knowledge as design for both managing information from primary and secondary sources as well as for creating the ideas put into final products. They read, wrote, and reasoned with the method.

Best of all, Perkins' method was incorporated into their Directed Reading and Thinking Activities (DRTA). That meant from September 1989 to June 1990, they organized readings from multiple genres and content areas with knowledge as design questions. They wrote argumentive essays or extended definitions about ideas or terms in given readings. Finally, they took three examinations that tested their abilities to reason with Perkins' method.

By the end of the year when the school wide reading marathon took place, the knowledge as design trained, sixth grade writers in 165 racked up the highest total of book reports in the entire school at the end of the three week contest. More importantly, they learned to read for both problem solving and enrichment. On the average, they also wrote over 5,000 words for the school year and learned to think more effectively about a range of ideas across the curriculum.

Any whole language program worth its salt within the historical context of an information society guided by a holographic world view and facing increasingly chaotic systems must include a simple, but powerful technology for managing information and creating knowledge.

Perkins' method encourages dialectical thinking, and it specifically can be used for either analysis or synthesis.

Take for instance this poem from Jerry Fluellen's book *Song of Gaia.*

Education

observation: human life evolves continuously, becoming
the deep and wide, yet single and the Tao
neurons we are for Gaia, a complex global brain a simple form: one--
linked at the implicate order like many flowers in God's Garden
one and zero

from the Tao,
Gaia seeks to know herself,
taking on endless possibilities,
creating silicon based life to raise carbon
bodies, sending probes through fiber
optics and space and sea--
all united with the way and contrasted with the way

What purpose then must education serve?

get each neuron ready to help Gaia know herself

a complex purpose but simple form:
one and zero
microbes outlived mastodons

Learners using the knowledge as design framework can ask these questions about the poem:

1. What purpose (s) does the poem serve?
2. What is its structure? (form, language, style, meaning)
3. What model cases of other poems about education exist?
4. What arguments can be made about the poem? (What does it mean? How well does it rate as a poem? What pattern connects it to other forms of literature?)

Perkins' knowledge as design method can be used for synthesis as well. Take for instance the suggested model for designing a holographic whole language approach that is presented in the table below.

table: MODEL FOR DESIGNING A HOLOGRAPHIC WHOLE LANGUAGE APPROACH

PURPOSE

COMBINES

3 FACTORS TO HELP LEARNERS
REACH FULL HEIGHTS AS MAKERS OF KNOWLEDGE

STRUCTURE

DEVELOPS

- consciousness
- procedural knowledge
- declarative knowledge
- social knowledge

MODEL CASES

DRAWS ON

- Bateson's epistemological question (What is the pattern which connects all the living creatures?)
- Basseches' model of dialectical thinking
- Bohm's theory of order
- Capra's ecological paradigm
- Maharishi's theory of consciousness
- Prigogine's theory of chaos
- Piaget's theory of constructivist epistemology
- Vygotsky's theory of social cognition

ARGUMENTS (EXPLANATORY, EVALUATIVE, DEEP EXPLANATORY)

CONNECTS

- spirituality and science
- content and process
- critical and creative thinking
- information, knowledge, wisdom

YIELDS

- multiple presentations of material across learning styles and ability levels
- multiple assessments of academic achievement
- multiple psychoeducational gains (mastery of content and procedures, improved self esteem etc.)

OFFERS

- a tool for inventing curriculum for a Solar Age
- a tool for in depth learning and development of dialectical thinking
- a tool for teacher led research projects
- interconnectedness and multidimensionality in a simple form

H = K1 + K2 + K3

WHERE

H = HOLOGRAPHIC WHOLE LANGUAGE APPROACH
K1 = PROCEDURAL KNOWLEDGE INCLUDING A METHOD FOR DEVELOPING CONSCIOUSNESS
K2 = DECLARATIVE KNOWLEDGE, I.E. CONTENT AREAS
K3 = SOCIAL KNOWLEDGE, I.E. SOCIAL COGNITION PRESENT IN COOPERATIVE LEARNING GROUPS

That is the synthesis power of knowledge as design.

In summary, what Perkins' knowledge as design does for a living is give teachers a simple, powerful technology to help learners understand information and create ideas others will want to read or hear. Students can use it to think, learn and create--the three skills John Naisbitt and Patricia Aberdene say are the new basic skills for an information society.

To deepen the explicate order picture of key factors in a whole language model guided by the holographic world view, k-w-l and knowledge as design needs to be used in **cooperative learning groups**. At Sulzberger (1989-1990 school year) 6th grade students who had mastered Perkins' knowledge as design method by the second report card test of higher order thinking were encouraged to teach the others during subsequent DRTAs, assignments, and projects. They also worked on research projects in small groups of students across ability levels.

This year (1990-1991), 150 7th and 8th grade students used k-w-l in reading and knowledge as design in writing and reasoning while they worked in cooperative learning teams of two to five students. As the year unfolds, use of cooperative learning teams in DRTAs will increase. Most of their efforts with the two procedural knowledge systems, and the social knowledge system will aim at great world literature for its specific subject matter content.

In sum, students connect psychotechnology (or spirituality), procedural knowledge such as k-w-l and knowledge as design, declarative knowledge (e.g. great world literature, science, social studies, art, music, mathematics, etc., and a social context that permits free dialog among learners. But a whole language program must also deal with a more silent dimension of the explicate order, namely, **change.**

Following Watzlawick's work, two kinds of change are possible:

1st order (a reorganization of internal elements in a system)
2nd order (a total transformation of the system)

Ms. Daisy and her driver, main characters in the film " Driving Ms. Daisy, " illustrate 1st order change. Over the years internal elements of their relationship changed. They began as strangers. They finished as deep friends. But the external definition of their relationship as mistress and servant never altered. The system remained intact.

The more things change, the more they remain the same, say the French. In contrast, Blackthorn of James Clavell's novel *Shogun* completely transformed from an English pilot to Anjin-San the samurai, the same kind of second order transformation Costner's character makes in the film " Dances With Wolves." He changes from United States civil war hero to valued member of an Native American tribe, from explorer of the frontier outside to the one inside.

Once students master k-w-l and knowledge as design, they can use them as metacognitive strategies to read, write or reason in any subject or even across subjects. As they move on through the grades the subject fields may change, the work may get harder, but the strategies remain for life.

For example, Earnest Bond, one of the sixth grade students who learned knowledge as design, the first year it was introduced at Sulzberger, commented the other day on the system.

" I use knowledge as design in most of my subjects," said Ernest in summing how he approaches content in his seventh grade majors.

" I don't talk about it, I just do it."

Starritha Williams, another knowledge as design trained student, said Mr. Richarson, her 7th grade English teacher, uses knowledge as design sometimes when he teaches literature. She felt her 6th grade training is helping her do well in his class.

On the other hand, 2nd order change requires a total transformation of the system. The caterpillar becomes a butterfly. Bob Marley changes Ska music to Reggae. In the case of a whole language approach, 2nd order change is the preferred, long term outcome. Learners should become less ego encapsulated selves and more unitive selves. They should move through all of Piaget's four stages of cognitive development right on through Bassesches' hypothesized, Neo Piagetian fifth stage--dialectical thinking. They should move from utilitarian learners to lifelong learners. They should evolve to experience the metanoia Joseph Chilton Pearce described in *Crack in the Cosmic Egg*--the deep transformation that makes a physics student a physicist.

The claim here is that students who stay in regular touch with the unified field of consciousness, practice a learning strategy, master an interdisciplinary system for higher order thinking, and engage cooperative learning will indeed evolve to their highest selves.

Most of all, they should have the 21st century literacies needed to negotiate a global, knowledge based economy set in the holographic paradigm.

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